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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/691,496

10/24/2003

Jessie Hu

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06/13/2007

ROSENBERG, KLEIN & LEE

3458 ELLICOTT CENTER DRIVE-SUITE 101

ELLICOTT CITY, MD 21043

EXAMINER

CHU, RANDOLPH I

ART UNIT

PAPER NUMBER

2624

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,496	<b>Applicant(s)</b> HU, JESSIE	
	<b>Examiner</b> Randolph Chu	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-16 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 10 are rejected under 35 USC 103(a) as being unpatentable over Wakabayashi et al. (US 2004/0047419) in view of Huang et al. (US 2003/0185446).

In regard claim 1, Wakabayashi et al. teach, (a) dividing an incoming image into a plurality of blocks (para. [0062], [0063]); (b) comparing said plurality of blocks to corresponding blocks of a referred image and saving compared results into a declared data structure (fig 6. ref label S46); (c) marking a compared result that exceeds a first predetermined threshold, whereby a changed block corresponding to said compared result can be indicated (fig 6. ref label S47); (d) grouping said compared result into an adjacent region thereof, whereby changed blocks can be regionally grouped together (Fig. 10 and 11); and (e) calculating a deviation value of said region and comparing said deviation value to a second predetermined threshold, whereby motion can be detected and the noise caused from moire and the interference resulted from an area

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brightness variation also can be filtered out (para. [0089]) (Fig. 10 and 11, para [0118]-[0127]).

Wakabayashi et al. does not teach expressly that a deviation value of the region is calculated by  $\frac{\sum |x_i - x_{avg}|}{n * x_{avg}}$ , where  $i = 0$  to  $n$ ,  $n$  represent a quantity of said compared result in said region,  $x_i$  represents the compare result, and  $x_{avg}$  represents an average of said compared result in the region.

Huang et al. teaches that deviation (normalized error) for region is calculated by dividing the sum of the absolute difference for all sub-regions by sum of the average values for all sub regions.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to calculate deviation value using sum of the absolute difference for all sub-regions divide by sum of the average values for all sub regions in the method of Wakabayashi et al.

The suggestion/motivation for doing so would have been that deviation value is normalized so that deviation value is not affected by other environmental factor.

Therefore, it would have been obvious to combine Huang et al. with Wakabayashi et al. to obtain the invention as specified in claim 1.

3. Claims 2 and 11 are rejected under 35 USC 103(a) as being unpatentable over Wakabayashi et al. (US 2004/0047419) in view of Huang et al. (US 2003/0185446) and in further view of Ozaki (US 6,393,153).

Wakabayashi et al. teaches all the limitations of claim 1 as applied above from which claim 2 respectively depend.

Wakabayashi et al. does not teach expressly that plurality of blocks is 1% ~ 4% of said incoming image.

Ozaki teaches that size of block of image is 8 x 8 or 16x16 (Fig.5, co. 5 lines 19-34).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use block that size is 1% ~ 4% in the method of Wakabayashi et al.

The suggestion/motivation for doing so would have been that to balance a conflict between locality and efficiency of calculation. Further, there is no disclosed criticality of the range of 1% ~ 4% or opposed to any other value.

Therefore, it would have been obvious to combine Ozaki with Wakabayashi et al. to obtain the invention as specified in claim 2.

4. Claims 3-6 and 12-15 are rejected under 35 USC 103(a) as being unpatentable over Wakabayashi et al. (US 2004/0047419) in view of Huang et al. (US 2003/0185446) and in further view of Shiiyama (US 7,075,683).

Wakabayashi et al. teaches all the limitations of claim 1 as applied above from which claims 3 and 6 respectively depend.

With regard claim 3, Wakabayashi et al. does not teach expressly that the comparing step as follows: 
$$\frac{\left( \sqrt{\sum (a_i - b_i)^2} \right)}{m * m}$$
 where i=0 to m\*m, m represents a side of

said plurality of blocks, and  $a_i$  and  $b_i$  respectively represent a pixel value of a corresponding block of said incoming image and said referred image.

Shiiyama teaches detection using average of sum of square of the difference (col. 13 lines 3-10).

With regard claim 6, Wakabayashi et al. does not teach expressly that first predetermined threshold is 1.

Shiiyama teaches fixed threshold (col. 13 lines 3-10).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use average of sum of square of the difference and threshold in the method of Wakabayashi et al.

The suggestion/motivation for doing so would have been that It attempts to minimize the sum of the squares of the ordinate differences (called residuals) between points and threshold is set to 1 because the number of measured data is 1 and the gradient descent method is used to minimize the squared residual. Further, there is no disclosed criticality of the predetermined threshold equal to 1 or opposed to any other value.

Therefore, it would have been obvious to combine Shiiyama with Wakabayashi et al. to obtain the invention as specified in claims 3 and 6.

5. With regard claim 4, Wakabayashi et al. teaches referred image is a prior image to said incoming image (para. [0118]):

6. with regard claim 5, Wakabayashi et al. teaches referred image is a later image to said incoming image (para. [0118]).

7. Claims 7 and 16 are rejected under 35 USC 103(a) as being unpatentable over Wakabayashi et al. (US 2004/0047419) in view of Huang et al. (US 2003/0185446) and in further view of Liu et al. (US 2004/0233197).

Wakabayashi et al. teaches all the limitations of claim 1 as applied above from which claim 7 respectively depend.

Wakabayashi et al. does not teach expressly that group is employed by a double linked list.

Liu et al. teaches that that group is employed by a double linked list. (para [0055]).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to employ a double linked list to group in the method of Wakabayashi et al.

The suggestion/motivation for doing so would have been that double linked list is easy to manipulate because they allow sequential access to the list in both direction.

Therefore, it would have been obvious to combine Ozaki with Wakabayashi et al. to obtain the invention as specified in claim 7.

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8. Claims 9 and 18 are rejected under 35 USC 103(a) as being unpatentable over Wakabayashi et al. (US 2004/0047419) in view of Huang et al. (US 2003/0185446).

With respect claim 9, Wakabayashi et al. discloses all the limitations of claim 1 as applied above from which claim 4 respectively depend.

Wakabayashi et al. does not disclose expressly that second predetermined threshold is 0.35

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use predetermined threshold value.

Applicant has not disclosed the second threshold value of 0.35 provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with other threshold value because threshold can be optimized depend on environment or situation .

Therefore, it would have been obvious to combine to one of ordinary skill in this art to modify Wakabayashi et al. to obtain the invention as specified in claim 9.

With regard claim 10, please refer to rejection for claim 1.

With regard claim 11, please refer to rejection for claim 2.

With regard claim 12, please refer to rejection for claim 3.

With regard claim 13, please refer to rejection for claim 4.

With regard claim 14, please refer to rejection for claim 5.



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With regard claim 15, please refer to rejection for claim 6.

With regard claim 16, please refer to rejection for claim 7.

With regard claim 18, please refer to rejection for claim 9.

### **Response to Amendment**

2. In response to applicant's amendment received on 3/28/2007, all requested changes to the claims have been entered.

### **Response to Argument**

3. Applicant's arguments filed on 3/28/2007 have been fully considered but they are not persuasive.

Applicant's argue on page 12 of the response that the disclosure of Wakabayashi et al. is detection motion in image frame with unclear divided blocks and unclear threshold and the claimed invention is using clear divided blocks and clear threshold.

The examiner disagrees. The examiner does not understand that what is clear divided blocks and clear threshold in claim 1.

Applicant's argue on page 15 of the response that the exact size of block of image is an important know how, but applicant still did not provide criticality of the range of 1% ~ 4% or opposed to any other value.

### ***Allowable Subject Matter***

9. The indicated allowability of claims 8 and 17 of last office action which now part of claims 1 and 10 are withdrawn in view of the newly discovered reference(s) to Huang et al. (US 2003/0185446). Rejections based on the newly cited reference(s) follow.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randolph Chu whose telephone number is 571-270-1145. The examiner can normally be reached on Monday to Thursday from 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695/7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

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applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RIC/



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